**Objectives:** To evaluate factors that may predict prostate cancer (PCa) detection after initial diagnosis of high-grade prostatic intraepithelial neoplasia (HGPIN) on 6-24 cores prostatic biopsy.

**Materials and Methods:** We retrospectively evaluated 262 patients submitted from 1998 to 2007 to prostate re-biopsy (rPBX) after initial HGPIN diagnosis in tertiary academic centres. HGPIN diagnosis was obtained on initial systematic prostate biopsy with 6 to 24 random cores. All patients were re-biopsied with a “saturation” rPBx with 20-26 cores with a median time to rPBx of 12 months. All slides were reviewed by expert uro-pathologists.

**Results:** Plurifocal HGPIN (pHGPIN) was found in 115 pts and monofocal HGPIN (mHGPIN) in 147 pts. One hundred and eight and 154 patients were submitted to >12-core initial PBx and ≤12-core, respectively. Overall PCa detection at rPBx was 31.7%. PSA (7.7 vs 6.6 ng/ml;p=0.031) and age (68 vs 64 years;p=0.001) were significantly higher in patients with PCa at rPBx. PCa detection was significantly higher in pts with a ≤12-core initial biopsy than in those with >12-core (37.6% vs 23.1%;p=0.01), and in pts with pHGPIN than in those with mHGPIN (40% vs 25.1%;p=0.013). At multivariable analysis, PSA value (p=0.041; HR:1.08), age (p<0.001; HR:1.09), pHGPIN (p=0.031; HR:1.97) and ≤12-core initial biopsy (p=0.012; HR:1.95) were independent predictors of PCa detection.

A nomogram including these 4 variables achieved 72% accuracy in predicting PCa detection after an initial HGPIN diagnosis.
**Discussion:** PCa detection on saturation rPBx after initial diagnosis of HGPIN is significantly higher in pts with ≤ 12-core than those with > 12-core initial prostate biopsy and in patients with pHGPIN than in those with mHGPIN. Moreover, higher PSA value and older age are associated with PCa detection at saturation rPBx.

**Conclusions:** We developed a simple prognostic tool for the prediction of PCa detection in patients with initial HGPIN diagnosis, undergoing saturation prostate re-biopsy.

Fig.1: Reduced model nomogram for prediction of prostate cancer detection at re-biopsy after initial isolated HGPIN detection.